

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

Claims 1-13 (Cancelled)

14. (Currently Amended) A composition of ~~treated~~ fucosylated HSCs; comprising:

CD34⁺ HSCs derived from umbilical cord blood and lacking or having reduced expression of surface protein CD38, wherein said fucosylated HSCs are produced by treating said CD34⁺ HSCs in vitro with an α 1,3 fucosyltransferase in the presence of a fucose donor, and wherein at least 10% of the ~~CD34⁺~~ fucosylated HSCs bind to P-selectin or E-selectin; and
a pharmaceutically-acceptable carrier.

15. (Currently Amended) The composition of claim 14 wherein at least 25% of the ~~CD34⁺~~ fucosylated HSCs bind to P-selectin or E-selectin.

16. (Currently Amended) The composition of claim 14 wherein at least 50% of the ~~CD34⁺~~ fucosylated HSCs bind to P-selectin or E-selectin.

17. (Currently Amended) The composition of claim 14 wherein at least 75% of the ~~CD34⁺~~ fucosylated HSCs bind to P-selectin or E-selectin.

18. (Currently Amended) The composition of claim 14 wherein at least 90% of the ~~CD34⁺~~ fucosylated HSCs bind to P-selectin or E-selectin.

19. (Currently Amended) The composition of claim 14 wherein at least 95% of the ~~CD34⁺~~ fucosylated HSCs bind to P-selectin or E-selectin.

Claims 20-21 (Cancelled)

22. (Currently Amended) A blood product comprising:
a population of ~~treated~~ fucosylated human HSCs comprising cells characterized as CD34⁺ CD38^{low/-}, and wherein said fucosylated human HSCs are produced by treating said CD34⁺ CD38^{low/-} HSCs in vitro with an α 1,3 fucosyltransferase in the presence of a fucose donor, wherein at least 10% of the ~~CD34⁺ CD38^{low/-}~~ fucosylated human HSCs bind to P-selectin or E-selectin.

23. (Currently Amended) The blood product of claim 22 wherein at least 25% of the ~~CD34⁺CD38^{low/+}~~ CD34⁺CD38^{low/+} fucosylated human HSCs bind to P-selectin or E-selectin.

24. (Currently Amended) The blood product of claim 22 wherein at least 50% of the ~~CD34⁺CD38^{low/+}~~ CD34⁺CD38^{low/+} fucosylated human HSCs bind to P-selectin or E-selectin.

25. (Currently Amended) The blood product of claim 22 wherein at least 75% of the ~~CD34⁺CD38^{low/+}~~ CD34⁺CD38^{low/+} fucosylated human HSCs bind to P-selectin or E-selectin.

26. (Currently Amended) The blood product of claim 22 wherein at least 90% of the ~~CD34⁺CD38^{low/+}~~ CD34⁺CD38^{low/+} fucosylated human HSCs bind to P-selectin or E-selectin.

27. (Currently Amended) The blood product of claim 22 wherein at least 95% of the ~~CD34⁺CD38^{low/+}~~ CD34⁺CD38^{low/+} fucosylated human HSCs bind to P-selectin or E-selectin.

28. (Currently Amended) The blood product of claim 22 wherein the ~~treated~~ fucosylated human HSCs are derived from human umbilical cord blood.

29. (Currently Amended) The blood product of claim 22 wherein the ~~treated~~ fucosylated human HSCs are derived from peripheral blood.

30. (Currently Amended) The blood product of claim 22 wherein the ~~treated~~ fucosylated human HSCs are derived from bone marrow.

31. (Original) The blood product of claim 22 further comprising a pharmaceutically acceptable carrier or vehicle.

32. (Original) The blood product of claim 22 further comprising a free fucosyltransferase or a fucosyltransferase bound to a support.

33. (Currently Amended) A blood product produced by the method comprising:

providing ~~a quantity of~~ HSCs, at least a portion of the ~~HSCs lacking or~~
having which lack or have reduced expression of surface protein
CD38; and

treating the ~~quantity~~ of HSCs in vitro with an α 1,3-fucosyltransferase and a fucose donor to produce ~~treated~~ fucosylated HSCs, wherein at least 10% of the ~~treated~~ fucosylated HSCs bind to P-selectin or E-selectin.

34. (Currently Amended) The blood product of claim 33 wherein at least 25% of the ~~treated~~ fucosylated HSCs bind to P-selectin or E-selectin.

35. (Currently Amended) The blood product of claim 33 wherein at least 50% of the ~~treated~~ fucosylated HSCs bind to P-selectin or E-selectin.

36. (Currently Amended) The blood product of claim 33 wherein at least 75% of the ~~treated~~ fucosylated HSCs bind to P-selectin or E-selectin.

37. (Currently Amended) The blood product of claim 33 wherein at least 90% of the ~~treated~~ fucosylated HSCs bind to P-selectin or E-selectin.

38. (Currently Amended) The blood product of claim 33 wherein at least 95% of the ~~treated~~ fucosylated HSCs bind to P-selectin or E-selectin.

39. (Currently Amended) The blood product of claim 33 wherein the ~~quantity of~~ fucosylated HSCs are derived from human umbilical cord blood.

40. (Currently Amended) The blood product of claim 33 wherein the ~~quantity of~~ fucosylated HSCs are derived from peripheral blood.

41. (Currently Amended) The blood product of claim 33 wherein the ~~quantity of~~ fucosylated HSCs are derived from bone marrow.

Claims 42-54 (Cancelled)

55. (Currently Amended) A composition of ~~treated~~ fucosylated HSCs, comprising:

CD34⁺ HSCs derived from umbilical cord blood, wherein said fucosylated HSCs are produced by treating said CD34⁺ HSCs in vitro with an α 1,3 fucosyltransferase in the presence of a fucose donor, and wherein at least 10% of the ~~CD34⁺~~ fucosylated HSCs bind to P-selectin or E-selectin; and
a pharmaceutically-acceptable carrier.

56. (Currently Amended) The composition of claim 55 wherein at least 25% of the ~~CD34⁺~~ fucosylated HSCs bind to P-selectin or E-selectin.

57. (Currently Amended) The composition of claim 55 wherein at least 50% of the ~~CD34⁺~~ fucosylated HSCs bind to P-selectin or E-selectin.

58. (Currently Amended) The composition of claim 55 wherein at least 75% of the ~~CD34⁺~~ fucosylated HSCs bind to P-selectin or E-selectin.

59. (Currently Amended) The composition of claim 55 wherein at least 90% of the ~~CD34⁺~~ fucosylated HSCs bind to P-selectin or E-selectin.

60. (Currently Amended) The composition of claim 55 wherein at least 95% of the ~~CD34⁺~~ fucosylated HSCs bind to P-selectin or E-selectin.

Claims 61-62 (Cancelled)

63. (Currently Amended) A blood product produced by the method comprising:

providing ~~a quantity of~~ HSCs; and

treating the ~~quantity~~ of HSCs in vitro with an α 1,3-fucosyltransferase and a fucose donor to produce ~~treated~~ fucosylated HSCs, wherein at least 10% of the ~~treated~~ fucosylated HSCs bind to P-selectin or E-selectin.

64. (Currently Amended) The blood product of claim 63 wherein at least 25% of the ~~treated~~ fucosylated HSCs bind to P-selectin or E-selectin.

65. (Currently Amended) The blood product of claim 63 wherein at least 50% of the ~~treated~~ fucosylated HSCs bind to P-selectin or E-selectin.

66. (Currently Amended) The blood product of claim 63 wherein at least 75% of the ~~treated~~ fucosylated HSCs bind to P-selectin or E-selectin.

67. (Currently Amended) The blood product of claim 63 wherein at least 90% of the ~~treated~~ fucosylated HSCs bind to P-selectin or E-selectin.

68. (Currently Amended) The blood product of claim 63 wherein at least 95% of the ~~treated~~ fucosylated HSCs bind to P-selectin or E-selectin.

69. (Currently Amended) The blood product of claim 63 wherein the ~~quantity of~~ fucosylated HSCs are derived from human umbilical cord blood.

70. (Currently Amended) The blood product of claim 63 wherein the ~~quantity of~~ fucosylated HSCs are derived from peripheral blood.

71. (Currently Amended) The blood product of claim 63 wherein the ~~quantity of~~ fucosylated HSCs are derived from bone marrow.

72. (Original) The blood product of claim 63 further comprising a pharmaceutically acceptable carrier or vehicle.

73. (Original) The blood product of claim 63 further comprising a free fucosyltransferase or a fucosyltransferase bound to a support.

74. (New) A composition of fucosylated HSCs; comprising:

CD34⁺ HSCs derived from umbilical cord blood and lacking or having reduced expression of surface protein CD38, wherein said fucosylated HSCs are produced by treating said CD34⁺ HSCs in vitro with an α 1,3 fucosyltransferase in the presence of a fucose donor

and wherein said fucosylated HSCs have enhanced binding to P-selectin or E-selectin; and
a pharmaceutically-acceptable carrier.

75. (New) A blood product comprising:

a population of fucosylated human HSCs comprising cells characterized as CD34⁺ CD38^{low/-} wherein said fucosylated HSCs are produced by treating said CD34⁺CD38^{low/-} HSCs in vitro with an α 1,3 fucosyltransferase in the presence of a fucose donor, and wherein said fucosylated human HSCs have enhanced binding to P-selectin or E-selectin.

76. (New) The blood product of claim 75 wherein the CD34⁺ CD38^{low/-} HSCs are derived from human umbilical cord blood.

77. (New) The blood product of claim 75 wherein the CD34⁺ CD38^{low/-} HSCs are derived from peripheral blood.

78. (New) The blood product of claim 75 wherein the CD34⁺ CD38^{low/-} HSCs are derived from bone marrow.

79. (New) The blood product of claim 75 further comprising a pharmaceutically acceptable carrier or vehicle.

80. (New) The blood product of claim 75 further comprising a free fucosyltransferase or a fucosyltransferase bound to a support.

81. (New) A blood product produced by the method comprising:
providing HSCs, at least a portion of which lack or have reduced expression of surface protein CD38; and
treating the HSCs in vitro with an α 1,3-fucosyltransferase and a fucose donor to produce fucosylated HSCs, and wherein said fucosylated HSCs have enhanced binding to P-selectin or E-selectin.

82. (New) The blood product of claim 81 wherein the HSCs provided are derived from human umbilical cord blood.

83. (New) The blood product of claim 81 wherein the HSCs provided are derived from peripheral blood.

84. (New) The blood product of claim 81 wherein the HSCs provided are derived from bone marrow.

85. (New) A composition of fucosylated HSCs, comprising:
CD34⁺ HSCs derived from umbilical cord blood, wherein said fucosylated HSCs are produced by treating said CD34⁺ HSCs in vitro with an α 1,3 fucosyltransferase in the presence of a fucose donor and wherein said fucosylated HSCs have enhanced binding to P-selectin or E-selectin; and
a pharmaceutically-acceptable carrier.

86. (New) A blood product produced by the method comprising:
providing HSCs; and
treating the HSCs in vitro with an α 1,3-fucosyltransferase and a fucose donor to produce fucosylated HSCs, wherein said fucosylated HSCs have enhanced binding to P-selectin or E-selectin.

87. (New) The blood product of claim 86 wherein the HSCs provided are derived from human umbilical cord blood.

88. (New) The blood product of claim 86 wherein the HSCs provided are derived from peripheral blood.

89. (New) The blood product of claim 86 wherein the HSCs provided are derived from bone marrow.

90. (New) The blood product of claim 86 further comprising a pharmaceutically acceptable carrier or vehicle.

91. (New) The blood product of claim 86 further comprising a free fucosyltransferase or a fucosyltransferase bound to a support.